

FURTHER NOTES ON AUSTRALIAN COLEOPTERA, WITH
DESCRIPTIONS OF NEW GENERA AND SPECIES.

By the Rev. T. BLACKBURN, B.A.

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XXXIV.

LAMELLICORNES.

TROGIDES.

These insects form the sixth of the seven "tribes" into which Lacordaire divided the first of his main divisions of the *Lamellicornes*. He separated that tribe from all the others on the ground of there being only five ventral segments in the abdomen of the insects that compose it. The tribe is widely spread over the world, but not rich in *genera*. Its members are for the most part scavengers, feeding upon offal of all kinds, and therefore are, on the whole, to be regarded as useful to mankind. As might be expected from their habits, the species are easily disseminated from one land to another, and some of them have become cosmopolitan. In the following pages I have to record the occurrence in Australia of a species (not previously recorded in Australia) whose home is in Europe.

Five genera of *Trogides* have been recorded as Australian—*Megalotrox*, *Trox*, *Liparochrus*, *Antiochrus*, and *Acanthocerus*. The last named is distinguished from the four others by its body being contractile. Its place in the Australian catalogue rests on the foundation of a single species (*A. spinicornis*), described by Fabricius, who, however, does not seem to have been very confident as to its *habitat*. I have never seen any Australian *Acanthocerus*, and am not aware of any reliable authority for attributing *A. spinicornis* to this continent. Consequently I have nothing definite to say about it. The validity of one of the remaining *genera* (*Antiochrus*) has been challenged by the Baron de Harold, who considers it identical with *Liparochrus*, but it appears to me to be very satisfactorily distinct, and I have therefore retained the name. *Megalotrox* differs from the normal structure of *Trox* in the great size of its hitherto described species, in its being apterous (with elytra soldered together), in its small scutellum deeply sunk in the base of the elytra, in the wide epipleuræ of its elytra, in its short metasternum. Nevertheless I am in doubt of the generic validity of this aggregate on account of the presence in my collection of a specimen from Tasmania which is intermediate between it

and ordinary species of *Trox*. The specimen in question is comparatively small (Long. 7 l.), and has elytra not soldered together and wings (short ones, as far as I can see), but presents all the other characters mentioned above as those of *Megalotrox*. It may be noted that Lacordaire states that in his opinion the presence or absence of wings has no importance in *Trox*. Under these circumstances, if *Megalotrox* is to stand as a good genus, another new generic name will be required for my Tasmanian specimen; but as the latter distinctly connects *Megalotrox* with *Trox*, and it is probable that other intermediate forms will yet be discovered, it seems better for the present to regard *Megalotrox* as a subgenus. For the present, at any rate, then, I am not satisfied that Australia possesses more than three valid genera of *Trogides*, viz., *Trox*, *Liparochrus*, and *Antiochrus*, which can be distinguished as follows:—

A. Antennal club normally lamelliform *Trox*.

AA. Basal joint of antennal club subcupuliform.

B. Elytra normally striate ... *Liparochrus*.

BB. Elytral with a wide lateral margin which is closely striate, in contrast with the general surface ... *Antiochrus*.

N.B.—I ought to add here that I have not seen the type of *Antiochrus*, which is presumably in Europe, but have identified it from Dr. Sharp's description, so that there is a bare possibility of my identification being incorrect.

TROX.

This genus is very widely distributed over the earth, and some of its species have been introduced into so many lands that they have become more or less cosmopolitan. Lacordaire says that America is the continent where *Trox* is most plentiful. Species found in Australia have been described under 34 names, 7 of which I believe to be merely synonyms or names which are incapable of being referred to any particular species. These are discussed below. In the following pages I purpose supplying a tabulation of the distinctive characters of the known Australian *Troges*, together with some notes on synonymy, etc., a note on an introduced species, and descriptions of 6 new species. A certain number of the names are connected with descriptions so brief or vague as to be practically useless. These are all, I think, from the pens of Mr. W. S. Macleay and Sir W. Macleay, and it would be of little advantage to furnish a revision of the genus without giving some account of these difficulties, which I am the better able to do, as an opportune need for visiting Sydney has enabled me to spend a couple of days in studying the *Trogidæ* of the "Australian" and "Macleay"

Museums. Unfortunately, the results of that visit are unsatisfactory for the Macleayan species, as I find that the types do not bear tickets enabling them to be identified. In both Museums each name is written, together with a mention of the *habitat*, on a slip of paper laid on the surface of the cabinet drawer, into which slip are pinned all the specimens supposed to be of that species, the individual specimens being without separate tickets. I now proceed to supply information regarding the separate species, and regarding some others that seem to call for remark.

T. alternans, W. S. Macl. There is no specimen in either of the Sydney Museums bearing this name, and Mr. Masters is satisfied that the type is not in existence. Harold, without giving his reasons, assumes it to have been the insect which Erichson described as *T. Australasiae*, and consequently drops *Australasiae* as the later name. It, however, appears to me quite indefensible to sink a name connected with a good (and easily identified) description in favour of a name connected with a description that might be founded on any one of a considerable number of species, unless it be definitely stated that the change is founded on an examination of the original type. I shall, therefore, treat *T. alternans*, W. S. Macl., as non-existent.

T. subcarinatus, Macl. In the Australian Museum two specimens stand pinned into this name. One of them is the species that Harold subsequently described as *T. fenestratus*; the other is so covered with accretion that it is impossible to identify it with certainty, but I think it is *T. Crotchii*, Har. In the Macleay Museum also two specimens are similarly attributed to the name, one of which is *T. fenestratus*, Har.; the other, *T. candidus*, Har. The last named is evidently not the type, as it is notably smaller than the specimen that Macleay described. *T. subcarinatus*, Macl., is, therefore, identical with either *fenestratus*, Har., or *Crotchii*, Har. The description of *subcarinatus* does not supply information to decide the matter, although it appears to me to point to *Crotchii*, as it seems unlikely that if it had been founded on the same species as *fenestratus* the nitid spaces on the elytra would have escaped notice. I am afraid, however, that there is not sufficient evidence to justify the sinking of either of Harold's names, and that it is the name *subcarinatus* which must be dropped. It may be well to remark here that the *Trox* which Harold described as *subcarinatus*, Macl., is not that species, but *squamosus*, Macl.

T. alatus, Macl. There are two specimens thus named in the Macleay Museum. They represent a very remarkable and isolated species, notable by the great width of the pro-

thorax (almost twice as wide as long), by the sides of the pronotum extremely flat and dilated, by the reduction of all the carinæ of the pronotum except the middle two to mere small tubercles, by the third and fifth systematic series of the elytra being entire carinæ, by the all but absolute disappearance of the median external tooth of the front tibiæ and by the strong free projection hindward of the prosternal process.

T. asperatus, Macl.—Two specimens stand in the Macleay Museum as this species. They both appertain to the species that Harold named *Crotchi*. The latter is the older name.

T. dilaticollis, Macl. Two specimens in the Macleay Museum bear this name. They represent a species closely allied to *T. Augustæ*, Blackb., but differing from it in having on its elytra well-defined rows of small setose tubercles (scarcely less defined than those of *T. fenestratus*, Har.).

T. asperrimus, Macl. Two specimens in the Macleay Museum are pinned into the ticket bearing this name. I cannot find any difference between them and the specimens (from the same locality) pinned into the next label (bearing the name *vitreomaculatus*) except that the two of the former name are more deeply covered with the indumentum usually obscuring the sculpture of these insects, and therefore seem to have less defined carinæ on the pronotum, etc. As the name *asperrimus* is evidently founded on the presence of the indumentum and *vitreomaculatus* is a good descriptive name I propose retaining the latter, the two being of same date.

T. salebrosus, Macl. Two specimens in the Australian Museum and one specimen in the Macleay Museum stand as this species. One of them has the carinæ of its pronotum blunter than the corresponding carinæ in the two others, and there is some variation in the brilliance and conspicuousness of the nitid spaces on the elytra (which, however, might not be the case if the specimens were effectually cleaned). I am unable to find any good character distinguishing them from *vitreomaculatus*, Macl., and I consider them identical with that species.

T. semicostatus, Macl. Two specimens attributed to this name are in each of the Sydney Museums. The species is a very distinct one, allied to *Crotchi*, Har., but very much smaller, and having all the alternate elytral series continuously costiform in their basal half.

T. nodicollis, Macl. Two specimens pinned into the ticket bearing this name in the Macleay Museum are somewhat closely allied to *fenestratus*, Har., but, *inter alia*, are much smaller and have the intervals between the systematic series of the elytra much more roughly sculptured.

T. Castelnau, Lansb. This, I have no doubt, is a mere variety of *gigas*, Har. No distinctive character is mentioned in the description that appears to me at all likely to be specific.

T. Tatei, Blackb. This insect was originally described as possibly a variety of *gigas*, Har. Subsequently to my publication of the name I have identified the true *gigas*, and find that it is perfectly distinct. As I did not describe *T. Tatei* as a species, I include it among the species to be described below.

T. carinatus, Har. Its author states that this insect is a variety of *T. Australasiae*, Er.

T. squamosus, Macl. This name is represented by two specimens in each of the Sydney museums. They are the species which Harold called *T. subcarinatus*, Macl.

T. Australasiae, Germ (nec. Er.). Germar's brief description under this name is not sufficient for its confident identification, but there can be little doubt of its having been founded on *T. litigiosus*, Har., which is plentiful in the locality where Germar's specimen was found, whereas *T. Australasiae* Er., does not, so far as I know, occur there.

Before passing to the tabulation of the distinctive characters of the Australian species of *Trox* it seems desirable to offer some general remarks on the specific value of some of those characters, and on some of the terms that I have used to indicate them. The Australian species of *Trox* are remarkably variable in respect of some of their superficially most conspicuous features, but very constant in respect of certain others. Like most strongly tuberculated *Coleoptera* the development of the tubercles is decidedly variable, specimens being very often met with in which the tubercles are not identical on the two elytra, *e.g.*, there are often two rows cariniform at the base on one elytron, and only one on the other; often a cariniform basal part of a series is much longer on one elytron than on the other. The external teeth of the front tibiae are variable in number, specimens being frequent in which the number is different on the right and left tibiae. Each species certainly seems to me to have a *normal* number of teeth—1, 2, 3, or more—and I do not find that variation tends to default but only to *excess* of teeth, but it is certainly not at all rare in this respect. The structure of the prosternum behind the coxae is certainly variable, though not frequently so. I have examples before me of several species having the middle of the prosternum normally produced in a small angle behind the coxae, in which this angle is quite wanting. It must further be noted that the Australian species of *Trox* are liable to a remarkable blunting of the sharper prominences of their structure. Whether this

is due to imperfect development or to some attrition to which the parts in question have been exposed by the habits of the insects I cannot say, but it is certain that specimens are frequent in which sharp teeth on the tibiae are represented by mere blunt sinuosities, and sharp carinae on the pronotum and conical tubercles on the elytra are represented by corresponding blunt elevations having all the appearance of having been rubbed down. Perhaps it may be thought that I may be in error in regarding these variations as non-specific, but I can say positively that they are so, as I have found them in varying degrees in specimens differing in no other way and taken in company. All the above characters have been treated as specific in most of the published descriptions of these insects, doubtless through the descriptions having been founded on the inspection of only one or two specimens, and doubtless they are specific if regarded merely as indicating the *normal* characters, but they are clearly not available for reliable identification of the species.

The following characters I have found invariable, and as I have examined large numbers of specimens of some species they must at any rate be only very rarely variable:—The setulose vestiture, the texture of the inequalities of the surface (whether glabrous and nitid, or more or less setiferous, or more or less punctulate, or of an apparently spongiöse tissue), the relation of the subsutural carina of each elytron to a short basal carina which borders the external margin of the scutellum: in some species the latter is straight and altogether disconnected from the former, in others the former is bent outward at the apex of the scutellum and runs forward in a curve to meet the latter (it must be noted that the subsutural carina, so-called, is not always a continuous carina, but may be broken into short pieces not quite touching each other), the general disposition of the elytral tubercles. Regarding this last-named character it is to be observed that it is quite distinct from the question of the size and shape of individual tubercles, or the extent to which this and that tubercle are run together into a short carina (which, as noted above, are very variable). To make this clear it is necessary to adopt a name for the tubercular series of the elytra. If an elytron of almost any Australian *Trox* be examined there will be seen ten longitudinal ridges of some kind; in almost all the species they are more or less tuberculiferous, and may or may not be the intervals between defined striae; the first of them is close to the suture (I have called it the subsutural carina), the third is almost always, and the fifth is frequently, a narrow, continuous carina in its basal part. These ten ridges I have called the "systematic series," in Latin "series normales." In many

species there are also numerous small granules or large punctures, either without order or in sinuous or straight rows, interspersed among the systematic series, but in no case known to me capable, on careful inspection, of confusion with the latter. In a single species (*T. Brucki*, Har.) some of the systematic series are wanting, in a few species the systematic series are all similar *inter se*, in most of the species they (especially their tubercles) are alternately larger and smaller. Among these, the second, fourth, etc., series are the larger in some species, the third, fifth, etc., in other species. In these elytral characters I have found no tendency to variation. An invariable specific character is to be found also in the degree of declivity of the antero-lateral part of the elytra connected with the comparative prominence and shape of the humeral callus and the development of the front part of the sublateral systematic series; but these characters are difficult to express in words, though easy to appreciate when specimens are examined. To this extent, however, the character just mentioned can be used with advantage; if a *Trox* be looked down upon from exactly above it (so that the two lateral margins appear symmetrical) in some species (the less convex ones) the whole of the actual margin is visible on both sides as an even line, but in others its front part, from the point of view indicated, appears on both sides interrupted by its own deflexion or by the protrusion (beyond its outline) of the outline of the humeral callus or of the tubercles of the sublateral or lateral systematic series.

I should add that I have not found very satisfactory characters in the prothorax. The sinuosity of the margins of that segment is extremely variable within the limits of a species, as also the sharpness of the sculpture of the pronotum. Undoubtedly there are species in which the normal condition of the lateral margins is strongly and others in which it is feebly (or not) trisinate, species in which normally the hind angles are well developed, and others in which they are normally more obtuse; but I have not succeeded in discerning any really workable distinction in these characters in more than two or three species. The greater or less declivity hindward of the part of the pronotum in front of the basal lobe seems to be a character calling for attention in identifying species.

Attention must be called to the fact that it is impossible to form a correct idea of the sculpture of a *Trox* without the removal of the indumentum, with which almost all specimens are coated. This generally requires the use of a strong brush (such as a tooth-brush), which, fortunately, the hard texture of the body renders practicable without injury to the specimen.

TABULATION OF THE KNOWN AUSTRALIAN SPECIES OF *Trox*.

- A. Without wings for flying; elytra soldered together (*Megalotrox*).
- B. Lateral margins of elytra deeply serrate.
- C. Projections of elytral margins blunt. Size moderate (long, about 10 l.) ... Dohrni, Har.
- CC. Projections of elytral margins acute. Size much larger ... gigas, Har.
- BB. Lateral margins of elytra (at most) lightly crenulate.
- C. Head very closely (almost confluent) punctulate ... Elderi, Blackb.
- CC. Head sparsely punctulate ... Tatei, Blackb.
- AA. Winged; elytra not soldered together (*Trox*).
- B. Epipleuræ of elytra much wider than in the following species ... tasmanicus, Blackb.
- BB. Epipleuræ of elytra comparatively narrow.
- C. The middle two carinæ of pronotum conspicuously abbreviated behind.
- D. Elytra with about 20 conspicuous lines of short, bright fulvous setæ.
- E. The elytral setæ fasciculated on the prominences of the systematic series.
- F. The prominences of the systematic series of the elytra are scarcely marked ... Augustæ, Blackb.
- FF. The prominences of the systematic series well defined ((almost as in *T. fenestratus*, Har.) ... dilaticollis, MacI.
- EE. Elytral setæ evenly distributed (nowhere fasciculated), and notably longer than in "E" ... setosipennis, Blackb.
- DD. Elytra not as in D.
- E. Elytral tubercles (unless at their extreme apex) nitid, glabrous, and punctureless.
- F. Subsutural carina of elytra continues along sides of scutellum and inner part of elytral base.
- G. Lateral margins of prothorax crenulate (form of body very wide, tending to sub-circular) ... eremita, Blackb.

- GG. Lateral margins of prothorax not crenulate (form of body much more ovate) ... Crotchii, *Har.*
- FF. Subsutural carina of elytra not continuous with the short carina on either side of scutellum.
- G. The elytral prominences of largest area are in 3rd, 5th, etc., systematic series.
- H. 3rd, 5th, and 7th systematic series of elytra costiform in about their basal half (size small) ... semicostatus, *Macl.*
- HH. Systematic series of elytra very little costiform.
- I. Subapical external tooth of front tibiae much smaller than apical tooth ... eyrensis, *Blackb.*
- II. Subapical external tooth of front tibia about same size as apical tooth ... quadridens, *Blackb.*
- III. Subapical external tooth of front tibia all but non-existent alatus, *Macl.*
- GG. The elytral prominences of largest area are in the 2nd, 4th, etc., systematic series.
- H. Hind tibiae normal ... stellatus, *Har.*
- HH. Hind tibiae strongly incurved in their apical part ... curvipes, *Har.*
- EE. Most (or all) of the elytral tubercles entirely (or nearly so) spongiöse or setulose or punctulate.
- F. Lateral margins of elytra in front part (viewed from above, and so that both are seen symmetrically) form an even line.
- G. Subsutural carina of elytra continues along sides of scutellum and inner part of elytral base.
- H. The alternate systematic series of the elytra very different from the others.
- I. All the systematic series of the elytra tuberculiferous.

- J. Two distinct rows of well-defined punctures between 1st and 3rd systematic series ... fenestratus, *Har.*
- JJ. Space between 1st and 3rd systematic series occupied by confused rugulosity ... nodicollis, *Macl.*
- II. Alternate systematic series devoid of tubercles ... Brucki, *Har.*
- HH. All the systematic series of the elytra similar (or nearly so) *inter se.*
- I. Lateral margin of elytra narrow and subvertical ... velutinus, *Blackb.*
- II. Lateral margin of elytra wider and flattened (as in *litigiosus*, *Har.*) ... insignicollis, *Blackb.*
- GG. Subsutural carina of elytra not continuous with the short carina on either side of scutellum.
- H. Size moderate or large ($5\frac{1}{2}$ l. or more).
- I. Subapical callus of elytra quite strongly prominent (both externally and internally) and bearing two of the largest tubercles of the elytra ... litigiosus, *Har.*
- II. Subapical callus of elytra but little prominent, and bearing comparatively small tubercles.
- J. The elytral tubercles of largest area are on 2nd, 4th, etc., systematic series, and are nitid ... strzeleckianus, *Blackb.*
- JJ. Elytral tubercles not as in J.
- K. Elytra not having conspicuous nitid black spaces.
- L. Apical dilatation of front tibiae bifid ... euclensis, *Blackb.*

- LL. Apical dilatation of front tibiae entire ... mentitor, *Blackb.*
- KK. Elytra having numerous conspicuous nitid black spaces tricolor, *Blackb.*
- HH. Size very small (4 l. or less) ... vitreomaculatus, *Macl.*
- FF. Lateral margins of elytra in front part (viewed from above) interrupted by projection of humeral callus or of tubercles
- G. Intermediate and hind tibiae unarmed or finely crenulate, externally.
- H. Prothorax very evidently at its widest considerably in front of middle ... squamosus, *Macl.*
- HH. Prothorax at its widest at, or behind, the middle.
- I. Tubercles of elytra unusually few in number and large Australasiae, *Er.*
- II. Tubercles of elytra much more numerous and smaller candidus, *Har.*
- GG. Intermediate and hind tibiae with some conspicuous, well-defined external teeth ... perhispidus, *Blackb.*
- CC. Middle two keels of pronotum not definitely abbreviated behind.
- D. Antennal club dark; form wide and rounded; long. 4 l. sabulosus, *Fab.*
- DD. Antennal club lighter; form narrow and parallel; long. 3 l. scaber, *Illig.*

T. (Megalotrox) Tatei, *Blackb.* Late ovalis; sat convexus; niger; capite sparsim fortiter punctulato transversim obtuse nec alte carinato; prothorace quam longiori ut 6 ad 4 latiori, postice lobato, supra costis tuberculisque crassis inaequali, sparsim punctulato (partibus laterilibus crebre granulatis), postice quam antice ut 13 ad 8 latiori, angulis posticis subrectis, lateribus arcuatis crenulatis; elytis confuse granulatis et tuberculorum magnorum obtusorum seriebus 3 (et tuberculorum multo minorum serie subsuturali) ornatis, lateribus subtiliter crenulatis; tibiis anticis extus tridentatis, dente apicali bifido. Long., 13 l.; lat., 8 l (vix).

At once distinguishable from the other *Troges* of the section *Megalotrox*, except *Elderi*, Blackb., by the lateral margins of its elytra being only finely crenulate, and from *Elderi* by its much narrower and more convex form, its much less transverse prothorax, its much more sparsely punctured and more uneven head, and its pronotum much less closely punctured and having much thicker carinae and tubercles, which are, indeed, so wide that there can scarcely be said to be any distinct flat intervals between them, whereas in *Elderi* the prominences on the pronotum are narrow and separated from each other by wide, flat intervals.

S.W. parts of South Australia.

T. tasmanicus, sp. nov. Alatus; minus late ovatus; fere glaber; minus nitidus; niger; capite ruguloso-punctulato, fronte bituberculata; prothorace quam longiori ut 8 ad 5 latiori, supra fere ut caput punctulato, longitudinaliter carinis 6 nitidis fortiter elevatis instructo (carinis medianis 2 sinuatis postice fortiter abbreviatis, intermediis fortiter sinuatis in medio interruptis, externis interruptis et in dimidio pronoti antico carentibus), ad latera late explanato, margine laterali sat æqualiter arcuato incrassato grosse punctulato, angulis omnibus obtusis, basi latissime rotundatim modice fortiter lobata; scutello minori, depresso; elytris valde inæqualibus, serierum normalium tuberculis nitidis (nonnullis sat grosse punctulatis) 1^æ parvis (haud cum carina scutellari continuis) 3^æ 5^æ 7^æ que magnis (serie 3^a ad basin breviter cariniformi) 9^æ parvis ceterarum granuliformibus cum granulis aliis inæqualiter commixtis, marginibus lateralibus totis sat fortiter serratis, epipleuris perlatis nitidis minute granuliferis; metasterno brevi; tibiis anticis extus inermibus, posterioribus 4, crenulatis, prosterno pone coxas subtruncato. Long., 7 l.; lat., 4½ l.

The only winged Australian species yet described or known to me having the broad elytral epipleuræ and short metasternum of the large species for which M. de Borre proposed the name *Megalotrox*.

Tasmania.

T. setosipennis, sp. nov. Alatus: minus late ovatus; minus opacus; niger vel piceus vel rufo-piceus, antennarum clava rufa; supra setis subtilibus læte fulvis (in pronoto quam in elytris magis brevibus, in his ut series circiter 20 sat regulares dispositis nec in ulla parte fasciculatis) vestitus; subtus partibus nonnullis rufo ciliatis; capite puncturis setiferis sat grossis nec crebre nec fortiter impresso, fronte bituberculata; prothorace quam

longiori ut 13 ad 8 latiori, supra fere ut caput punctulato sed paullo magis fortiter, fere ut *T. tasmanici*, Blackb., carinato sed carinis obtusis multo minus elevatis, ante lobum basalem medianum sat fortiter declivi, margine laterali fortiter trisinuato, angulis anticis sat obtusis posticis sat acute rectis, basi utrinque profunde late emarginata (lobo mediano triangulari); scutello modico lanciformi; elytris vix perspicue tuberculatis, seriebus normalibus 1^a 3^a, etc., obtuse leviter convexis 2^a 4^a, etc., sat planis sed pustulis magnis nitidis nonnullis vix elevatis ornatis, intervallis inter series normales longitudinaliter seriatim foveatis, seriebus ipsis longitudinaliter seriatim sat subtiliter punctulatis, serie 1^a antice haud ut carina ad scutelli latera continua, callo subapicali minus elevato; tibiis anticis extus bidentatis; prosterno medio pone coxas acuto minus producto. Long., 7 l.; lat., $3\frac{4}{5}$ l.

This species, *T. dilaticollis*, MacL., and *T. Augustæ*, Blackb., are easily distinguishable from all the other Australian species of *Trox* known to me by the numerous and conspicuous rows of fine, brightly fulvous setæ on their elytra. They resemble each other considerably, but are separated by good characters—the inequalities of the pronotum being in the other two species strong cariniform ridges, in this one feeble obtuse convexities; the subsutural carina of the elytra being in the other two continuous along the sides of the scutellum, in this species widely disconnected from the short elevation that margins the sides of the scutellum in their front part; the elytral setæ being very evidently shorter, less erect, in the other two than in this species, those setæ, moreover, in the other two not being regularly spaced (on account of two or three setæ being placed close together here and there as a fascicle on the apex of a scarcely defined tubercle), while in the present species each seta is isolated, and all are very equally separated *inter se*.

South Australia (Yorke's Peninsula).

T. eyrensis, sp. nov. Alatus; sat late ovatus; fere glaber; minus nitidus; niger, capite subtus et pedibus capillis nonnullis rufulis vestitis, antennarum clava rufa; capite sat crebre subfortiter vix rugulose punctulato, fronte bituberculata; prothorace quam longiori ut 13 ad 8 latiori, supra fere ut caput sed paullo magis rugulose punctulato, fere ut præcedentis (*T. tasmanici*) carinato, ad latera sat late explanato, ante lobum basalem medianum fortiter declivi, margine laterali ante medium haud vel leviter (pone medium leviter) sinuato, angulis anticis

nonnihil subacutis posticis subrectis, basi utrinque bisinuata (lobo mediano modico postice sat rotundato); scutello modico lanciformi; elytris tuberculato-inæqualibus, serierum normalium tuberculis nitidis lævibus (nonnullis postice ad apicem spongiosis) 3^a sat parvis 5^a 7^a 9^a gradatim magis parvis ceterarum granuliformibus, granulis minutis (vel puncturis) inter series normales lineatim sinuatim dispositis, serie 3^a breviter (5^a haud vel vix) ad basin cariniformi, 1^a ad basin haud ut carina ad scutelli latera continua, callo subapicali minus perspicuo; tibiis anticis extus dentibus 3 bene definitis armatis (dente apicali quam alii multo majori); prosterno medio pone coxas minute acuto. Long., 6½ l.; lat., 4 l.

The nitid punctureless tubercles of the systematic series on the elytra (some of them nevertheless being spongiose on a small area at the hinder part of their apex), together with the subsutural systematic series not at the base becoming cariniform and continuous along the sides of the scutellum, distinguish this species from all others bearing a general resemblance to it except *quadridens*, Blackb., which it closely resembles, though I am quite satisfied that the two are valid species. *Eyrensis* (which I have seen only from the southwest coast of Australia) has the sides of its prothorax evenly arched (rarely slightly sinuate), from the front nearly to the base, and then feebly sinuate, while in *quadridens* (which I have seen only from north of Port Augusta) the sides of the prothorax are quite strongly trilobed. There is also a reliable distinction in the armature of the front tibiæ. In both species those tibiæ have three or more external teeth (not rarely 4 on one tibiæ and three on the other), but in *quadridens* the subapical tooth is fully as large as the apical, while in *eyrensis* the apical tooth is very much larger than the others. I find also that the tubercles of the systematic series in *eyrensis* have much more spongiose tissue than in *quadridens*. In the latter, those tubercles are (as in *T. Crotchi*, Har.) all but absolutely without it; while in the former the postero-apical surface of most of them is distinctly opaque and spongiose, with the result that, looked at obliquely from behind, *eyrensis* might almost be referred to the *litigiosus* group of species, while regarded obliquely from in front scarcely any opacity can be seen on the tubercles. Apart from the different character of the tissue of its elytral tubercles *eyrensis* bears considerable general resemblance to the larger species of the *litigiosus* group. In other respects, however, it differs from them, *inter alia*, as follows:—From *litigiosus*, Har., by the more numerous external teeth of its

front tibiæ (I have not seen any *litigiosus*, in a long series, which has on both tibiæ more than two teeth; two is undoubtedly its normal number), by the much less prominence of the subapical calli of its elytra (these in *litigiosus* both are more prominent in themselves and also bear on the third systematic series a conspicuous tubercle scarcely smaller than the largest tubercle of that series), and by the distinctly red club of its antennæ; from *strzeleckensis*, Blackb., by the largest and most nitid elytral tubercles being on (not the second, fourth, etc., but) the first, third, etc., systematic series; and from *mentitor* Blackb., by the much larger and much less numerous tubercles of its elytra. *T. euclensis*, Blackb., and *vitreomaculatus*, Macl., hardly need to be differentiated, the former having *inter alia multa* nearly all its elytral tubercles almost entirely opaque, and the latter *inter alia multa* being one of the smallest Australian species of the genus.

South-east parts of Western Australia.

T. mentitor, Blackb. This species is closely allied to *T. euclensis*, Blackb., and difficult to separate by characters that lend themselves to tabulation. The character that I have selected for tabulation is very satisfactory if constant, but as *mentitor* continues unique I hesitate to place entire reliance upon it, though I find the bifidity of the apical dilatation of the front tibiæ constant in *euclensis* (of which I have examined many specimens). *T. mentitor* is a species of more parallel form than *euclensis*, and the tubercles of its elytral series are smaller and much more numerous and closely placed than the corresponding tubercles in *euclensis*, while the small granules of the interstices between the systematic series run (not in sinuous lines as they do in *euclensis*, but) in perfectly straight lines.

T. tricolor, sp. nov. Alatus; sat late ovalis; sat opacus; niger vel piceo-niger, palpis antennisque rufis; supra in elytris (areis numerosis nitidis aterrimis exceptis) pube subtilissima creberrima brunnea et setis brunneis cinereisque minus perspicuis (his in tuberculis subobsoletis fasciculatis) vestitus; subtus partibus nonnullis rufo-hirtis vel ciliatis; capite sparsim granulato-punctulato, fronte bituberculata; prothorace antice angustato, quam longiori ut 13 ad 9 latiori, supra ut caput granulato-punctulato (puncturis minute setiferis), fere ut *T. tasmanici*, Blackb., carinato sed carinis perobtusis, ante lobum basalem medianum haud abrupte declivi, margine laterali pone medium profunde emarginato, angulis anticis subacutis posticis subrectis, basi fortiter trisinuata, lobo basali postice angulato; scutello cordi-

formi; elytris inæqualibus, serierum normalium 1^a 3^a etc., tuberculis minus perspicuis (horum aliis nitidis, aliis opacis), serierum 2^a 4^a, etc., tuberculis fere nullis, inter series normales (his basin versus vix cariniformibus) seriatim sat grosse punctulatis (nec granulatis), carina subsuturali ad basin haud ut carina ad scutelli latera continua, callo subapicali vix perspicuo; tibiis anticis extus bidentatis; prosterno medio pone coxas obtuse angulato. Long., 6 l.; lat., 3 $\frac{4}{5}$ l.

Owing to the feebleness of its sculpture, the place of this species in a tabulation is not very obvious without careful consideration. The nitid (and slightly elevated) spaces on the third, fifth, etc., systematic series are so much more conspicuous than the ill-defined pubescent tubercles between them that at first sight the latter (which are the true tubercles of the series) might almost be overlooked, and the subsutural carina is so nearly obsolete that it is not very satisfactory to have to attribute to it any character at all. But in all genera of numerous species such cases of difficulty are to be expected where characters that serve well for identifying most of the species are less available in the case of occasional feebly developed species. The second, fourth, etc., systematic series of the elytra are sub-obsolete, but not (as they are in *Brucki*, Har.) absolutely wanting. The species, however, is easy to recognise, if in good condition, by the peculiar colouring, on which I have founded the name. The elytra present the appearance of being chequered with patches of three colours: the nitid black squares in the alternate interstices, the dark brown derm, and the cinereous setæ on the tubercles that are alternated with the nitid black squares. Its structural characters also render *T. tricolor* incapable of confusion with any of its described Australian congeners, as it is the only one of those not having defined tubercles or granules in the second, fourth, etc., systematic series, having conspicuous nitid black spaces in the first, third, etc., series.

New South Wales. Taken near Sydney by Mr. Carter.

T. perhispidus, sp. nov. Alatus; sat late ovatus; sat opacus; niger vel piceo-niger, palpis antennisque (harum basi excepta) testaceis vel rufis; supra in elytris setis brevibus fulvis circiter 16 seriatim longitudinaliter ornatus (his in tuberculis fasciculatis) et in marginibus setis elongatis piliformibus ciliatus; subtus partibus nonnullis rufo-ciliatis; capite obscure nec crebre granulato, fronte bituberculata; prothorace quam longiori ut 3 ad 2 latiori, supra ut caput granulato (granulis minute fulvo-setiferis), fere ut *T. tasmanici*, Blackb., carinato sed carinis subobsoletis perobtusis,

ante lobum basalem medianum sat fortiter declivi, margine laterali vix sinuato, angulis anticis sat obtusis posticis fere (nec acute) rectis, basi utrinque profunde late emarginata, lobo basali lato postice rotundato; scutello sat lato sublanciformi; elytris tuberculato-inæqualibus, serierum normalium tuberculis modicis opacis (aliis elongatis, aliis subconicis), serierum 3^æ 5^æ 7^æ 9^æ tuberculis quam ceterarum majoribus, tuberculis setis fasciculatis brevibus ornatis, inter series normales granulis nonnullis setiferis instructis, seriebus 3^a 5^a que ad basin plus minusve cariniformibus (1^a ad basin haud ut carina ad scutelli latera continua), callo subapicali vix perspicuo; tibiis anticis extus bidentatis, intermediis dentibus 2 prope mediam partem bene definitis et aliis nonnullis minoribus, posticis crenulatis; prosterno pone coxas late nec acute prominenti. Long., $4\frac{1}{2}$ l.; lat., $2\frac{1}{2}$ l.

This is an extremely distinct species, and cannot well be confused with any other Australian member of the genus. The sculpture of the middle tibiæ (consisting of two well-defined teeth about the middle of the external margin and smaller teeth above and below) in itself distinguishes it from all its known Australian congeners. Also the fringe of elongate, hair-like setæ on the lateral margins of the elytra are unusual, as well as the 16 longitudinal rows of setæ on each elytron, many of which setæ are fasciculate on tubercles in the first, fourth, seventh, tenth, and thirteenth rows (in the sixteenth they are somewhat obscure and confused with the long marginal setæ). Other unusual characters are the exceptional feebleness of the inequalities on the pronotum and the width of the scutellum. The species is in some respects suggestive of the European *T. hispidus*, Laich., but very distinct, *inter alia multa*, by the strong convexity of its pronotum, and the deep emargination of the base of that segment on either side, which is almost as in *T. Australasice*, Er. The strong convexity of the humeral callus and the strong projection of the tubercles of the ninth systematic series cause the true lateral margin of the elytra to be hidden in the front part, when the insect is looked down upon from above (from the point whence the two sides are seen symmetrically), so that the lateral margins from that point of view appear jagged, as in *candidus*, Har., and some other species.

Northern Territory of South Australia.

T. sabulosus, Fab. I have found an example of this European species among some Australian *Coleoptera*, given to me by Dr. Pulleine some years ago, and there is every reason to believe that it was taken somewhere near Adelaide.